Thursday, December 30, 1999 2:14:01 PM
Message

From: David McGeown

Subject: Re: PowerWeb Conference call

To: Brian Hayduk

Cc:
- Robert Bright
- Clem Palevich
- Jon Moore
- James Curnyn
- Doug Short
- David Kessler
- Bobbi Kates-Garnick
- srothstein
- JohnO
- Robert Morgan,Pacific
- Kirk Hampton
- Steven Levine
- Gustav Beerel

Attachments: Powerwebplansummary.DOC 45K

We will be having a conference call at 3:00 PM EST on Monday the 3rd to discuss the PoweWeb/Bell Atlantic opportunity in NJ. For those of you that do not have it, a summary of the deal will be forwarded to all.

Dial in Number 888-476-3752
code 724728

Summary of the deal is attached.

PLEASE PLEASE call me if you have any questions. A lot of work has been put into this so far. I welcome the opportunity to talk to you before Monday. I will be checking voice mail regularly.

HAPPY NEW MILLENIUM

David McGeown
NewEnergy
908 704 8437
E fax 413 581 9034

EXHIBIT
POWERWEB 8
12/4/03
HAROLD BROWN, C.S.R.

250 hrs Gen time
10/6hr instances.

POWERWEB DEAL SUMMARY

OPPORTUNITY

To expand our current relationship with Bell Atlantic by creating and operating a distributed powerplant using standby generators on many sites. The generators will be dispatched as regulations permit to improve reliability and collect the optimum revenues for Bell Atlantic.

NewEnergy had been offered opportunity to work with a small technology company who has been developing a deal with Bell Atlantic, Powerweb (www.2powerweb.com), to use their Omni-Link® system to create and sell reserve capacity on the PJM ISO and shape loads to market prices for Bell Atlantic using their emergency stand-by generators.

It is worth noting that a critical element to Powerweb is an arrangement with NewEnergy to promote their OmniLink technology nationwide. The first step in this deal with Bell Atlantic is to trade PJM capacity credits and to shape loads to market prices. Once this deal is closed we intend to look for other uses of their technology among our customers and to promote it to other regions of NewEnergy.

We are seeking advice on how to proceed prior to incurring significant development costs. The next phase is completing a detailed implementation plan for Bell Atlantic. The proposal that follows assumes that within AES we prefer to operate systems rather than build them. The data are preliminary based on the best available information. In the next stage of development we will upgrade them to investment quality. In your advice please consider how we can best serve our customers. Should we be a turnkey project developer whereby we take total responsibility for a project and sub-contract the EPC? OR, Is it better for us to avoid the turnkey construction contract, act as a managing agent, and have the client contract directly with the EPC contractor?

NEWENERGY BENEFITS

1. Relatively low risk entry into on site load management.
2. $400,000 one time project development fee (no direct costs)
3. $150,000 annual management fee ($75,000 sub-contract costs)
4. $50,000+ annual potential performance incentives (no costs)
5. Potential for additional sales resulting from Powerweb alliance

POWERWEB DEAL

A marketing alliance with Powerweb, initially focusing on telephone companies, to promote their OmniLink remote control and monitoring technology for improved reliability, energy cost reduction and on site generation.

Powerweb has invited us to participate in their Bell Atlantic deal as a first step in the marketing alliance. We are proposing to fund development costs of $100,000 to create a detailed project plan, schedule and investment analysis. NewEnergy (David McGeown) will control allocation and use of the funds. The money will be recovered from project progress payments if the deal closes. Based on representations from Bell Atlantic we believe that we will close and an Authorization To Proceed (ATP) will come in the next few weeks. There will be some exposure until that commitment is obtained. We believe this risk to be minimal. In the unlikely event that the deal does not close unused funds will be reallocated to other marketing efforts with Powerweb, or refunded if we fail to agree on other marketing efforts.

We propose an arrangement with Powerweb in which we will jointly develop sales opportunities; Powerweb takes responsibility for the turnkey Engineer Procure Construct (EPC) of a system. NewEnergy will take responsibility for operations, with a sub-contract to Powerweb for OmniLink technical services. Margins earned though any application of the OmniLink system will be split evenly between the two companies. Records will be available for review by both companies to review margins and market pricing.

BELL ATLANTIC DEAL

Bell Atlantic has a large installed base of on site generation to back up telephone switch operations. We are proposing to install to an OmniLink remote control system that will enable us to qualify these generators as capacity credits for Bell Atlantic under the PJM Active Load Management (ALM) program for 1 hour dispatch. Bell Atlantic has the first level of internal approvals for a pilot program to trade 50MW of ALM capacity (we will actually install controls on 75MW of generators to provide redundancy). This has a likely annual revenue stream of between $700,000 and $1.2 million, based on historic market pricing. At today's trading quotes of $50/MWday the contract would be worth $900,000 for Y2000. Contracts are typically for one year. Following success in this pilot program we expect to extend the contracts system wide (potentially 300MW).

Bell Atlantic base case income analysis (minimum projected revenue)

Gross annual capacity credit revenue	$700,000
Annual operating management fee	$150,000
Net income	$550,000
Maximum capital investment supported by net income	$2,750,000

Assumptions:
Using a baseline installed capacity (ICAP) price of $40/MWday to be conservative
Bell Atlantic investment hurdle rate 5 year simple payback

How revenues are generated

Payments to Bell Atlantic for the capacity credits will come from a participant in the PJM (Pennsylvania Jersey Maryland) Interconnect, known as Load Serving Entities (LSE), preferably NewEnergy.

Two elements of the PJM Operating Agreement create the market to generate revenues for Bell Atlantic.

1. The Reliability Assurance Agreement (RAA). Every LSE is required to purchase capacity sufficient to meet the load needs of its customers – known as Accounted-For Obligations. Schedule 7 of the RAA describes how to calculate Accounted-For Obligations and demonstrates that Active Load Management qualifies as a credit against a LSE's Accounted-For Obligations. Schedule 5.2 of the RAA describes the procedures for Active Load Management credit.
2. Schedule 11 to the PJM Operating Agreement governs trading of PJM Capacity Credits (ICAP). Market Participants buy and sell Capacity Credits through a process that establishes market-clearing prices. We will trade fixed price contracts for 12 months.

The exact trading mechanism for creating the revenue stream for Bell Atlantic will be decided as part of the detailed implementation plan. This is part of the value we deliver for our project development fee. Bell Atlantic is one of the largest customers for NewEnergy East. We are currently contracted to supply energy to Bell Atlantic in NJ until May. Incorporating these ALM credits into an energy supply deal for this summer and beyond may provide us with the competitive edge to retain Bell Atlantic's energy supply business. A number of trading options are open to us. Our preference will be driven by a determination of the risks in the penalty mechanism if Bell Atlantic's generators do not run. Traditional generator-based capacity (ICAP) has only to exist to qualify, however the ALM rules require demonstration that the load management operated to qualify. The implication is that if we fail to demonstrate operation of the on site generators there will be very significant penalties. Further research is required to gain a thorough understanding of these risks. Our first trading option is to sell ALM capacity directly on the wholesale market. If we do this and the generators fail to operate we end up with a messy wholesale deal. Adding contract terms to cover this possibility might make it a non-standard product, which might affect its price. The second possibility is that the retail region sells off 50MW of its standard ICAP (purchased in advance for Bell Atlantic), and then uses the 50MW of ALM capacity to meet its capacity obligations. The sale price of the standard ICAP defines the price for Bell Atlantic. Then, if the generators do not operate, due to Bell Atlantic, NewEnergy recovers any penalties from Bell Atlantic. This is cleaner from a wholesale perspective. Also, if the proposed system becomes available in May we would probably sell

balance of year ICAP, e.g., Jun-Dec. Also, we could sell calendar year 2001 ICAP to lock in that value as well.

References
www.pjm.com

ALM notes
- There have been 11 PJM emergencies in the last seven years, only 4 called on 1 hour ALM dispatch – it is likely that we will rarely be called on to operate the generators
- Stand-by generators can only be requested for 60 hours of operation per year
- A PJM emergency can only occur between 12 noon and 6pm June to August
- There can be only 10 emergencies each with a maximum duration of six hours

BELL ATLANTIC PROJECT PROPOSAL

1. Bell Atlantic contracts with Powerweb for turnkey design and build of dispatch system
2. Bell Atlantic contracts with NewEnergy for project development, system operation and maintenance. 3 year term, automatically renewing for additional 3 year terms

Pricing will consist of base fees plus a performance incentive.

Base fee estimates:

Powerweb EPC contract price	$2,300,000
NewEnergy project development fee	$400,000
Total system cost to Bell Atlantic	$2,700,000
NewEnergy annual operating management fee	$150,000

Assumptions:
Project pricing assumes 120 sites at a cost of $22,500
Operating costs include Powerweb service contract at $75,000

Performance incentive:
50% of any revenues generated by NewEnergy in excess of the investment base case net income of $550,000 per year.

Justification: The base case conservative capacity price of $40/MWday meets Bell Atlantic's investment hurdle rate. Through NewEnergy's efforts we can expect to earn significantly more, therefore NewEnergy should be rewarded for its skills to obtain the best price possible.

RISKS – PowerWeb –

Deal risks

1. Development funds are at risk if Bell Atlantic backs out of ALM deal.

Mitigation strategy: Firm commitment from Bell Atlantic expected by end of January. Allocation of development funds is subject to performance milestones, unlikely to exceed $25,000 by then. Funds can be redirected into other opportunities in development. As an example Bell Atlantic's generator group is interested in applying OmniLink for reliability alone.

2. Bell Atlantic Network Services has historically not allowed a switch to back up power unless there is an outage.

Mitigation strategy: Pressure on Bell Atlantic to cut operating expenses is enormous. Senior VP has demonstrated his backing for energy related projects. Since then Network Services have authorized a couple of pilot generator programs. They now accept that running generators when PJM declares an

emergency may improve reliability by avoiding problems they have had in the past when switching due to an outage.

3. EPC performance: All contracted directly to Powerweb. NewEnergy has customer reputation risks by supporting the deal.

Mitigation strategy: In project management role NewEnergy ensures that client gets a system capable of performing. NewEnergy's due diligence team has reviewed Powerweb and its technology. Site visit to working control system is outstanding. Site visit to Powerweb's office to witness operating front end software has been completed

4. Operation performance: Will the generators actually run when NewEnergy sends signal? Failure to provide evidence of performance to PJM may result in significant penalties.

Mitigation strategy: NewEnergy directs and witnesses system hand-over tests. OmniLink performance risks passed to Powerweb through system warranty and service contract performance guarantees. NewEnergy puts operational procedures in place to ensure the dispatch signal arrives on site during PJM emergency and selecting alternate sites if problems occur. Bell Atlantic is responsible for everything downstream of the dispatch signal on site (generator maintenance, etc.). We plan to qualify as 1 hour ALM dispatch to reduce the frequency of PJM calls (~4 in the last 7 years).

Regulatory risks

1. PJM capacity trading market is only guaranteed to 2001. Active Load Management (ALM) credits may go away after that.

Mitigation strategy: Bell Atlantic takes the risk. The Reliability Assurance Committee responsible for ALM has just extended the market for 1 year. It is clear that PJM has serious problems in summer. Likelihood is that there will be some form of emergency payments available for site generation. Also NewEnergy is developing a curtailable product for New Jersey. We should be able to replace ALM revenues by retrading the firm energy purchased for Bell Atlantic that is displaced by on site generators.

2. Generator permits: Will EPA cause problems with generator permits?

Mitigation strategy: Bell Atlantic takes the risk. Their regulatory team has already met and given the go ahead. Start with ALM during genuine system emergencies when it is almost certain that generators would run sometime during the day.

NEWENERGY PROJECT SPECIFIC RESOURCES REQUIRED

Project development and management	David McGeown
Familiarity with PJM operations	Bob Bright
System dispatch supervision	To be determined

NEWENERGY ACCOUNTING IMPLICATIONS

Even though the numbers are small we intend to capitalize costs as project development wherever possible.

DATA QUALITY

These are preliminary investment data presented to induce the parties to agree to move into a detailed design phase to finalize system design, contracts, trading mechanism, prices and schedule.

PROPOSAL TO PROCEED WITH POWERWEB TO IMPLEMENT CAPACITY AND ENERGY SALES WITH BELL ATLANTIC ON THE PJM

SUMMARY

We are proposing to use Bell Atlantic emergency generators to make money though sales of capacity and energy on the PJM. Our initial approach to Bell Atlantic was solely to use the generators as reserve capacity on emergency days, since then other, potentially better, opportunities to load shape and sell energy on peak days have been identified by the supply. We will continue to close the deal on capacity sales and augment with peak day energy sales when we have developed the product.

New Energy Ventures was approached this spring to partner with a small technology company, PowerWeb, to explore opportunities to use their Omni-Link® system to create and sell reserve capacity on the PJM ISO and shape loads to market prices for Bell Atlantic, using their emergency stand by generators. The most significant part of the deal for PowerWeb is that they need to fund the next stage of their technology growth. They have been advised that they should secure an up front payment for product and services to demonstrate commitment of a 'big energy company' to attract potential investors. This is a primary driver in the deal with NewEnergy. We are proposing to do this by funding the project development costs of this deal. These costs to be recovered from the project. An initial payment will be needed to fund the development to the point where we obtain final approval from Bell Atlantic.

Following our original advice letter at the end of September we have been working with PowerWeb on the due diligence process to decide if this is an appropriate venture for NewEnergy. We are recommending that we proceed on the terms outlined herein. NewEnergy will manage the deal. PowerWeb will engineer, procure, construct and maintain the system.

Both NewEnergy and PowerWeb have existing relationships with Bell Atlantic. NewEnergy in roles as energy supplier and energy auditing firm in New York, and now energy supplier in New Jersey. PowerWeb serving Bell Atlantic as energy technology company; and through its parent A-Valey, as a mechanical contractor in New Jersey. Since September PowerWeb has continued discussions with Bell Atlantic and has secured the first level of approvals from Bell Atlantic. They continue to offer the partnering arrangement to NewEnergy if we move quickly.

Through its existing work with Bell Atlantic, PowerWeb found the opportunity to use existing standby generators on Bell Atlantic properties as reserve capacity on the PJM on 'ISO emergency days'. They became aware of NewEnergy through the audit work we are doing with Bell Atlantic and approached us to partner on the deal. They are a small company and need a big name to succeed on a large scale. Although there are two other audit firms in the program PowerWeb considers NewEnergy the most suitable partner to develop business as we are also a supplier of energy and can offer the ability to shape loads according to market prices for energy. PowerWeb has proven the program principles by successfully implementing a similar project for a Philadelphia pharmaceutical company.

Current status

As part of our due diligence we have discussed the reserve capacity concept to Jim Goodman, the regional head for Team Energy at Bell Atlantic. We decided to offer capacity sales first, as it is available now. We do not currently have a load-shaping product. Bell Atlantic Network Service is more likely to accept the scenario to run on emergency days only rather than at the dictates of the market. Mr. Goodman has known the A-Valey (PowerWeb) people for many years. He is keen to make the deal work and has presented it to senior executives. We suggested a pilot program for

50MW of capacity (100 to 150 sites, around $3 million installed equipment value) in 2000 to prove that the program can work on a large scale, followed by system wide implementation in 2001. Bell Atlantic has indicated verbally that they would like to proceed with PowerWeb and are in the process of obtaining approvals. It is now up to NewEnergy to confirm our interest in participating.

In this phase of due diligence we have satisfied ourselves that PowerWeb's representations regarding their equipment and the contracting mechanisms for trading capacity are real, there is a deal to be made here. It is worth noting that there is some uncertainty regarding the future of capacity trading credits. At some time it is likely that the PJM will remove the current cap on commodity prices, allowing the market to trade freely. They will also eliminate the capacity trading market by changing the Reliability Assurance Agreement whereby suppliers must hold sufficient capacity credits to meet their obligations. At that time Bell Atlantic will be able to replace the capacity credit revenues with revenues from load shaping during market price spikes. In discussions with Doug Short in supply he has made a strong case for the benefits on peak days of reselling the energy we purchase ahead for Bell Atlantic's needs. He believes that we can structure a product quickly, however we need to close with Bell Atlantic now.

NewEnergy now needs to move beyond the due diligence phase. Products such as this will be an important contributor to future margins. We should get into the 'game'

Implementation costs will be $1.5 million on a sale of $3 million. As the funder of the project development we estimate that we will need to make up to $500,000 available to PowerWeb for audits, design and equipment prior to billing Bell Atlantic.

Closing the deal

In the next stage of development we will meet with senior Bell Atlantic executives to secure NewEnergy's position in the deal and firm commitments to proceed. Ideally we will secure this go ahead from Bell in the next couple of weeks. We believe that if we complete an initial system design, project plan and investment analysis we will secure final approval from Bell Atlantic. We are proposing to fund up to $100,000 to develop the project to the point where we get this final approval. Our risk is that we will pay for services and end up owning equipment for a deal that does not proceed. To mitigate this risk we will ask Bell Atlantic for a Letter of Intent to proceed with a guarantee to cover our expenses if we do not proceed (at a minimum $100,000).

This investment's most sensitive operating risk is that the generators will not be available when called on. Capacity obligations that are not met will incur large financial penalties. Bell Atlantic will carry this risk. We will supply them a system that is capable of performing the task, linked automatically to PJM dispatch. Routine tests and manual back up switching plans will be in place in case of any failures. By creating a 50% diversity in the capacity available for dispatch we believe that we can effectively eliminate the risk. Further, insurance is available to cover the risk (with 50% diversity in place) at 10% of the revenue stream.

We believe that it is prudent to seek additional advice prior to confirming our intent to proceed with PowerWeb.

Is it reasonable to commit to PowerWeb that we will proceed and that we will fund the development of the deal?

DUE DILIGENCE TEAM

Kirk Hampton, Steve Levine, McGeown, Lou Budike (PowerWeb)

PJM RULES THAT ENABLE CAPACITY TRADING

The Pennsylvania Jersey Maryland (PJM) interconnect is the Independent System Operator (ISO) responsible for the reliability of the electricity distribution system. Trade on PJM is governed by the terms of the Operating Agreement under which PJM was created. Two elements of the Operating Agreement are relevant to this transaction: a requirement to ensure adequate Capacity Resources will be planned and made available to provide reliable service to loads within the PJM Control Area, governed by a Reliability Assurance Agreement (RAA); and the PJM Capacity Credit Market, governed by Schedule 11 to the PJM Operating Agreement.

Reliability Assurance Agreement (RAA)

Under the Operating Agreement PJM is required, at all times, to maintain generation in reserve in case of outages. Each supplier on the PJM, known as Load Serving Entities, must be party to the RAA. There are currently 98 Load Serving Entities on the PJM, including NewEnergy. In the RAA suppliers are required to purchase capacity sufficient to meet the load needs of their customers – know as Accounted-For Obligations. Schedule 7 of the RAA describes how to calculate Accounted-For Obligations and demonstrates that Active Load Management qualifies as a credit against a Load Serving Entity's Accounted-For Obligations. Schedule 5.2 of the RAA describes the procedures for Active Load Management credit.

The PJM Capacity Credit Market

The PJM Capacity Credit Market allows Market Participants to buy and sell Capacity Credits through a process that establishes a market clearing price in accordance with the general principles and procedures outlined in Schedule 11 to the PJM Operating Agreement. The PJM Capacity Credit Market consists of both the daily and monthly market.

What is Active Load Management (ALM)

Active Load Management is used on very hot days when traditional generation resources are stretched to the limit (especially since deregulation). Non traditional resources are required, such as load shedding and operating on-site stand by generators. These resources are called on when PJM declares an emergency, after all generating resources have been exhausted, and prior to voltage reductions. On a major PJM grid emergency, Bell Atlantic would be asked to turn on generators for several for hours. If a PJM emergency does occur, in most cases, commercial power will be lost at the building at some point during the day anyway.

The provisions for ALM and the resultant capacity credits are contained in Schedule 5 and Schedule 7 of the RAA. Emergency procedures in the event of capacity shortages are described in Section 2 of the PJM Emergency Operations Manual

References
www.pjm.com

History and rules

- There have been only 11 PJM emergencies in the last seven years
- Stand-by generators can only be requested for 60 hours of operation per year
- A PJM emergency can only occur between 12 noon and 6pm June to August
- There can be only 10 emergencies each with a maximum duration of six hours.

FINANCIAL BENEFIT TO BELL ATLANTIC

We are proposing that Bell Atlantic pay us for a system capable of dispatching their generators. Their initial return will come form the revenues for capacity credits. We will need to demonstrate the likely returns and associated risks to them.

The summer trading price of capacity has varied between $50/Mwday and $160/MWday. PowerWeb has sold contracts at averages of $50+/Mwday. We believe that we may be able to secure $75/Mwday. This price will generate a reserve capacity revenue stream of $1.4M per year. With this revenue stream, Bell Atlantic would realize its' initial investment ($3.0M) in a little more than 2 years. If revenues average $50/MWday the payback will be 3 to 4 years.

It should be noted that NewEnergy is the energy supplier for Bell Atlantic and could benefit from the load shaping that occurs when generators are operated. In theory we will hold contracts for 50MW of firm load that Bell Atlantic will not use. If we can predict when this will happen we will be able to trade the power, probably at the current market cap of $1,000/MWh. Profits are likely to be $900+/MWh. For the load of 50MW just 3 hours a day could generate $135,000 per day

An important part of the next phase of project development will be to secure letters of interest and develop the revenue model to investment quality.

DISPATCHING BELL ATLANTIC CAPACITY

Standby generators at Bell Atlantic sites will be used to provide the capacity reserve as a virtual power plant. PowerWeb's Omni-Link® system will be used to dispatch capacity. Using remote communications generators will be started automatically on call from the PJM. We believe that we will be able to bring all systems up within one hour to qualify for the 1 hour dispatch designation. This capacity is called on after sites that need 2 hour calls to come on line – i.e. much less frequently.

We will configure the Omni-Link® system to dispatch the generators at many different sites to meet the total obligation. By installing the system on generators with a total capacity larger than that needed we will build sufficient diversity into our virtual power plant to ensure that we will be able to provide Bell Atlantic with flexibility for their operational needs. We will mix and match to meet the demand. Part of the design of the pilot program will include working out which sites are selected for each emergency event with Bell Atlantic (First In First Out [FIFO] etc) to minimize potential disruption at the sites.

Presently in NJ and PA there are approximately 500 central offices that are candidates for capacity-side sales throughout the region on the PJM. From these 500 central offices approximately 250MW of capacity could be sold. Over the next 24 months, when competition in DE, DC, MD and VA opens, there will be another 700 PJM sites offering another 350 MW of capacity. In recent years Bell Atlantic has changed from back up for critical equipment only to full back up of each Central Office (CO), increasing the average size of generation capacity at each CO.

Other regional "Bell" companies have implemented generator usage (Bell South & Pacific Bell) to curve peak demand but this new reserve capacity method presents a more effective business solution for all telecommunication companies.

TECHNOLOGY

PowerWeb Technologies has designed an interactive energy information system that is custom designed for the telecommunication industry and enables Bell Atlantic to achieve operational efficiency within their existing facilities. This new energy information system is called Omni-Link®.

Initially Omni-Link® was designed for building automation systems and, later, expanded into translations for fire alarms, security alarms, and pressurized gas systems. New Jersey Bell (Bell Atlantic) utilized this integrated software from Powerweb Technologies to monitor all Central Offices.

The software engine that was developed for Bell Atlantic translates ASCII (American Standard Code for Information Interchange) ASCII code of the existing building control system and converts this ASCII language into a DTMF (Dual Tone Multi-Frequency) code for transmission through Bell Atlantic's network. A module was produced for all the major control systems. (Johnson, Honeywell and Andover).

The most vital component in any telecommunication-based business is their computer switch. The computer switch is the server that acts as the data highway to place phone calls from one location to another. Telecommunication companies go to great length to ensure that their computer switch does not experience failures. To ensure independence, most switches operate from batteries that are continuously charged, rather than from direct commercial power. Thus, during an electrical power outage telephone service is rarely lost.

The actual facilities that contain these switches are called Central Offices (CO). All central offices are "over" engineered to ensure reliability. These engineering designs include stand-by generators in case of commercial power loss as well as redundant HVAC systems.

Omni-Link® can utilize these "central office" engineering designs to enable telecommunication companies to reduce their supply and demand side costs as well as increase the network reliability of their switch. Omni-Link® is an interactive information system that utilizes digital sensors, translation software and a computer server to monitor, analyze, and control the daily operation of a telecommunication central office. Sensors and controls are strategically installed within the central office in a network configuration, similar to a standard computer network. All operations are controlled by an Internet based central interface called the Omni-Link® Dashboard. When called by the PJM Omni-Link® will signal the generators to start and confirm that they are on line. If a unit fails to come on Omni-Link® will select the next site.

Omni-Link® is unique because of its ability to translate protocol from other software platforms within the central office. Omni-Link® enables a supplier to offer telecommunication companies a multitude of value added services for both the supply and demand side of operations as well as increased network reliability.

IMPLEMENTATION PLAN

As a trial, NEE & PWT will be designing and building for Bell Atlantic a 50MW reserve capacity dispatch system. In order to achieve secure dispatch efficiency as well as redundant capacity supply (in the event of mechanical failure from the generators), the system will be designed to actually dispatch 75MW. The extra 25MW will not be traded for capacity credits until the original system design is increased.

The average central office produces 500KW in standby generation. In order to achieve 75MW of reserve capacity, approximately 150 locations will be analyzed and engineered in order to design the dispatch system. The full installation cost of the dispatch system is approximately $10,000 per site hence a total cost of $1.5M. The system will be sold for approximately $20,000 per site hence a sale price of $3.0M. This profit ($750k) would be split equally between PWT & NEE.

In order to complete the design, installation and operation of a 50MW-dispatch system there are three stages

1. Engineering Design
2. Field Installation
3. Operations

Engineering & Design:
In the design and engineering stage the following "up-front" items must be executed before installation. Although 150 locations must be completed, these services can be executed simultaneously.
Estimated design cost: $3,300 per location

Installation:
In the installation stage can be executed in an efficient manner. The total time for installation will be approximately 32 man-hours per building. This translates to two men for two days per site. There would be three teams of six men performing installs with three field supervisors and two supply runners. The total installation time for 150 locations should be less than 60 days.
Estimated installation cost: $3,200 per location

Operations:
In order to keep the system calibrated, monthly service will be performed on all equipment to test start-up and shut down sequences. In addition, the system operator must be on stand-by on all hot days to operate the system. This should cost approximately $85 per month per location during the summer months and $25 during all other months. These monies will be deducted up-front from the yearly revenues.
Estimated operational costs (150 sites): $75,000 per year

NEE will be funding PWT $500,000 to complete the engineering and design (for 150 central office locations) for the reserve capacity dispatch system. These monies will be paid up-front but will only be utilized with NEE approval in order to maintain installation target dates.

COMPLETING THE DEAL

Agreement with Bell Atlantic

Target January agreement

Steve Levine – draft terms

Agreement with PowerWeb

Steve Levine – draft terms

APPENDIX 1 POWERWEB'S ORIGINAL PLAN PRESENTED TO NEWENERGY

EXECUTIVE SUMMARY

During this competitive age of deregulation, energy suppliers are striving to offer customers new types of value added services that differentiate their own line of energy products from their competitors. Although suppliers attempt to offer their clients supply-side products (billing information systems, etc.) and demand-side opportunities (ESCO retrofit projects), no supplier has penetrated the clients' core business to actually increase revenue productivity.

Suppliers often boast about offering clients an integrated solution approach, however often fall short and offer only a commodity product with little profit margin. A true integrated solution approach is a product offering designed to save the client time, energy and money on both their supply and demand-side of operations as well as increase the productivity of their core business.

Powerweb Technologies has designed the first interactive energy information system that delivers to the client a true integrated solution. This system is custom designed for the telecommunication industry and enables companies (specifically Bell Atlantic) to achieve operational efficiency within their existing facilities. This new energy information system is called Omni-Link®.

The most vital component in any telecommunication-based business is their computer switch. The computer switch is the server that acts as the data highway to place phone calls from one location to another. All telecommunication companies go to great length to ensure that their computer switch does not experience any environmental hazards. To ensure environmental independence, most switches operate from batteries that are continuously charged, rather than from direct commercial power. Thus, during an electrical power outage telephone service is rarely lost. The loss of a switch will result in an instant revenue loss as well as a FCC investigation against that company.

The actual facilities that contain these switches are called Central Offices (CO). All central offices are "over" engineered to ensure constant environmental comfort to the switch. These engineering designs include stand-by generators in case of commercial power loss as well as redundant HVAC systems for the facilities. Although engineering attempts to alleviate these switch hazards, the fact remains that 81% of all switch failures are due to environmental conditions.

Omni-Link® can utilize these "central office" engineering designs to enable telecommunication companies to reduce their supply and demand side costs as well as increase the network reliability of their switch. Omni-Link® is an interactive information system that utilizes digital sensors, translation software and a computer server to monitor, analyze, and control the daily operation of a telecommunication central office. Sensors are strategically installed within the central office in a network configuration, similar to a standard computer network. All operations are controlled by an Internet based central interface called the Omni-Link® Dashboard.

Omni-Link® is uniquely different than all other information systems because of its ability to translate any protocol from any software platform within the central office. Omni-Link® will enable a supplier to offer telecommunication companies a multitude of value added services for both the supply and demand side of operations as well as increased network reliability.

SUPPLY-SIDE SERVICES – Omni-Link® will remotely monitor, consolidate and control all stand-by generation and energy information instantly through the interactive dashboard. This supply side control will enable the following supply-side services.

1. ***Standby Capacity Sales*** – Through existing contractual relationships with agents and suppliers at the PJM grid, Powerweb Technologies will enable Bell Atlantic to sell its virtual capacity on the open market. $70 to $90 dollars per MW-day at current rates.

2. ***Leveraged Purchasing***- The ability to negotiate better pricing with (other) suppliers by offering a risk hedge to the supplier during peak high energy-cost periods on the open market by dropping load.

3. ***"Real-Time" Peak Shaving*** – The ability to turn on generators in a "real-time" environment to reduce actual electrical cost but also monitor the market conditions to make the proper shedding decisions.

4. ***"Real-Time" Purchasing*** – The system may be used for "real-time" purchasing, having the ability to reduce internal supply risk with unstable market conditions.

DEMAND-SIDE SERVICES – Omni-Link® is an interactive information system, not a (BAS) Building Automation System. A BAS is designed to operate HVAC systems. Omni-Link® is designed to identify specific supply/ demand side in-efficiencies and address them directly through the network. Omni-Link® can communicate with an existing BAS in order to execute energy saving functions but is not a replacement. A few demand side network functions are:

5. ***Air Quality Efficiency Control*** – Omni-Link® will enable Bell Atlantic to remotely monitor carbon dioxide, VOC and other indoor pollutants to digitally regulate the outside air intake, year around. This air regulation will achieve energy savings as well as network reliability.

6. ***Repair & Maintenance Reduction***- Omni-Link® will enable Bell Atlantic to remotely diagnose and control all HVAC operations to prevent equipment failure, eliminate false service calls, and execute energy efficient operation.

NETWORK-SIDE SERVICES – Due to the extreme importance of the computer switch, Omni-Link® is designed to identify and monitor the conditions of switch failure. These services will reduce the risk of switch failure and increase the network reliability.

7. ***Switch / Circuit Pack Monitors*** - Circuit pack failure is the most common cause of switch failure. In short, a circuit pack must be free from high or low temperature, high or low humidity, dust, smoke, and electrostatic discharge. Omni-Link® will precisely monitor these 5 environmental items. If one of these environmental parameters exceed the acceptable range of operation, Omni-Link® will alarm a central dispatch and automatically execute a HVAC response

8. ***DC Battery Monitors*** – The batteries that operate the switch need to be monitored for charge, voltage, and maintenance. It is imperative that these parameters are monitored for switch safety. If one of these battery parameters exceed the acceptable range of operation, Omni-Link® will alarm a central dispatch and automatically execute a response.

CORPORATE HISTORY

Powerweb Technologies was formed in 1989 as the electrical distribution arm to A-Valey Engineers, Inc. A-Valey Engineers, Inc. is a 45 year old union mechanical and environmental contracting company based in Wallingford, PA and operates in the New Jersey and Philadelphia marketplace. A-Valey Engineers, Inc. has maintained a strong business relationship with Bell Atlantic for over 20 years and presently holds a master zone contractor agreement for mechanical contracting in New Jersey and Pennsylvania.

Powerweb Technologies has been a leader in designing custom information systems that reduce and manage operational expenditures for over seven years. Powerweb Technologies' corporate name is CAMTEL, Inc. This name expands to Computer Automated Management & Telecommunications. When The Company began in 1989, its core business was focused in software development. The Company created customized software engines that would interpret and translate different codes and algorithms of other existing software interfaces. These translations were used to control various systems through one user friendly platform.

Initially, these integration programs were designed for building automation systems. As time passed, the programs expanded into translations for fire alarms, security alarms, and pressurized gas systems. New Jersey Bell (Bell Atlantic) utilized this integrated software from Powerweb Technologies to monitor all Central Office (data highway) buildings.

The software engine that was developed for Bell Atlantic translates ASCII (American Standard Code for Information Interchange) ASCII code of the existing building control system and converts this ASCII language into a DTMF (Dual Tone Multi-Frequency) code. Once translated, the engine dials a standard telephone line into an Osborne Hoffman receiver and subsequently relay a numeral code that would signify a certain alarm condition in the building. Since there were different source codes for each automation system, a module was produced for all the major control systems. (Johnson, Honeywell and Andover).

In 1992, The Company expanded into the building controls market. The Company became a sub-distributor for Andover Controls in the State of New Jersey. The Company installed specialized control systems that concentrated in areas of preventive as well as predictive maintenance. This new breed of software integrates HVAC controls as well as digital sensors to perform predictive maintenance. In addition, the company began to design a graphical, yet adaptable "front-end" software interface that could be customized for easy use by field mechanics in the field with laptops.

In 1993, the company utilized its knowledge in the software and building controls market and applied it to the ESCO Services business. Powerweb Technologies designed retrofit

packages for large energy users and successfully retrofitted over 400 buildings in this fashion for Bell Atlantic, schools, municipalities, hospitals, and other large consumer institutions. Although the energy services business was viable, federal legislation began to shift from energy conservation to electricity deregulation, the ESCO business began to level off and become more difficult in the following years as the price for electricity fluctuated.

In 1994, the company observing this trend in the ESCO industry began to design a new type of facility information system. This new system would encompass our previous software expertise, building control, and ESCO services knowledge. In addition, this new system would address the legal and logistical impacts of electrical deregulation. A new product was designed to provide the consumer with an expandable "one stop" energy package that provides the information needed to purchase power intelligently. This system was named the Omni-Link®.

In 1996, the company began to implement telecommunication network reliability into the system and began field testing the applications and developing key components to the system.

MARKET ANALYSIS

Marketing

Powerweb Technologies recognizes that the marketing of the Omni-Link® product is a key component when penetrating a telecommunication company. In most telecommunication companies (specifically Bell Atlantic), there are three core groups that could benefit from the Omni-Link® product line. Although these groups perform different functions, they all have reliability and efficiency as a top priority. These groups are as follows;

1. Real Estate Services- Real Estate is the group within the company that is responsible for the structure that surrounds the central-office or district service center. This entails building engineering, maintenance as well as energy procurement. Typically this group is looking for monetary saving strategies that focus on energy supply and demand-side opportunities. This group is always looking to take responsibility of other vital telecommunication components within the central office in order to justify its cost basis within the company.

2. Network Services- Network services is the group within the company that is responsible for the network and the communication between the computer switches. They are responsible to keep the network on-line and they are to work with Real Estate to maintain proper environmental conditions. They have their own budget and can share information technologies among groups. Typically this group has better spending ability because of its critical nature but is always looking to improve efficiency and network reliability.

3. Power Group- The Power Group is the group within the company that is responsible for providing power to all the various components within the network and building structure. Because the switch works on batteries, they are responsible for the generators to these batteries. This group struggles with Real Estate for responsibility for components within

the central office. This group is a key marketing target for the installation of new generators into the Bell Atlantic organization.

MARKET SIZE

Bell Atlantic (Not including GTE)

The market size of Omni-Link® is dependent on how many services can be sold to the client. There are three independent revenue streams that could be obtained from the sale of the system, the hardware/software for the system, recurring monitoring services, and the sale of capacity side power on the open market. Although the system will be sold as one package, each value-added service will have its own independent impact and savings back to the company. Each of these services could be sold by the supplier or be jointly partnered with other strategic alliances.

There are a total of eight services that could be marketed and sold to Bell Atlantic for each of their central-offices that contain computer switches. In order to clearly understand the enormous market size and products potential it would be prudent to analyze each service separately. However, for the sake of a market size calculation, if all services were purchased for one central office the installation cost would be approximately $175k and the remote monitoring services could be approximately $300 per month. There are 1884 central-offices across the Bell Atlantic footprint. The extended revenue projection in this model will show that if all services were purchased for all central-offices, system sales could exceed $330 million, and there would be a recurring monthly revenue stream of $565k. These 1884 central-offices represent only the local land-based network switches, there are over 1000 more switches in the Bell Atlantic Mobile division and the new long distance infrastructure.

As for the capacity side sales (the primary focus), if we use an actual model to demonstrate the present market potential as it stands today, (through only the PJM marketplace) we could assume the following size calculation. In the Bell Atlantic region there are approximately 411 central offices that are candidates for capacity-side sales throughout the region on the PJM. From these 411 central offices approximately 200MW of capacity could be sold on the open market for the average price of $75 per MW day. This translates to capacity-side sales of $5,475,000.00 per year that could be shared with the client or utilized by the supplier for capacity transactions among other customers.

MARKET PENETRATION

Powerweb Technologies (as well as other key market analysts) believes that a system offering monetary savings and reliability to a telecommunication companies' "business-critical assets" could reach $1 billion in sales within five years.
In the United States alone, there are approximately 25,000 local (not long-distance) land-network central-offices that are potential candidates for the Omni-Link® system. Due to corporate consolidation, all 25,000 of these central-offices are owned and operated by only seven communication companies. Calculating the average sale price of the system and the recurring revenue charges, this product line translates to a $10 billion business.

Powerweb Technologies realizes that the penetration of this product to a telecommunication company will need to be strategically implemented and carried out in timely stages.

However, understanding the mindset of communication companies, we strongly believe that the electricity supply-side of the telecommunication business is the perfect entry point to begin offering these information services. This is due to the market potential of capacity-side sales, which is a lucrative business opportunity today. In the United States, land based (local) central-offices consume over $3 billion in electricity yearly. Powerweb Technologies believes that Omni-Link® could be instrumental in securing the supply-side contracts for a majority of that energy business as well as transact the sale of virtual capacity and other Omni-Link® information services.

The configuration of all standby generators for all Bell Atlantic central-offices (as well as all land network CO's) is ideal for capacity side sales. The ability to sell the virtual capacity portion of energy to other suppliers in deregulated regions, offers a supplier a competitive advantage when offering energy products services. By calculating the amount of central-offices in the Bell Atlantic region (1884) by the average of 275 kW per CO, this translates to over 500 MW's of virtual capacity that may be used to sell on the open market or leverage better pricing for other supply customers. By expanding these calculations to the entire land network of CO's, (25,000), this totals a connected capacity load of over 6500 MW's in the domestic United States. The sale of capacity to other suppliers on the open market is a business that is available today that Powerweb Technologies has transacted for an international pharmaceutical company in the PJM territory. Powerweb Technologies has decided to delay execution of a Bell Atlantic capacity-side transaction in order to strategically align itself with a partner that could distribute the product regionally.

Understanding that "energy supply" will be the key entrance point for system sales, Powerweb Technologies realizes the need for a business partner capable of distributing the product, energy and energy services to the telecommunication industry internationally. It is imperative that the partner administers the same "out-of-the-box" thinking as Powerweb Technologies and clearly understands the impacts of deregulation in the electrical market. It is imperative that the partner has the influence to work with other electrical distribution nodes around the country to offer similar capacity-side programs as the PJM. Lastly, it is imperative that the partner believes in offering value and service to its customers through focused integrated solutions. Powerweb Technologies believes this partner could be NewEnergy.

In order to ensure the proper market penetration, a joint marketing and sales effort will need to take place between Powerweb Technologies and the partner. Powerweb Technologies believes that the timing for entry into the telecommunication industry is excellent at this time due to the critical nature of their networks and the competitive nature of their business (to drive down delivery costs).

SALES & PROFIT ANALYSIS

Menu of Services

Although there is no standard price for each of the system service modules, the chart below will indicate the actual system costs, installation costs, and a general profit margin. These installation of the systems and services will be handled turnkey by Powerweb Technologies and will be installed by authorized Bell Atlantic contractors.

	END USER PRICE	MATERIAL COST	SOFTWARE COST	INSTALLATION COST	MARK-UP
Supply-Side Services			($60 per hour)	($70 per hour)	
Stand By Capacity Service	$25,000 plus capacity split	$6,500.00	$2,800	$4,600	90%
Leveraged Purchasing	$5000 plus % savings	$0	$480	$560	Over 100%
Real-Time" Peak Shaving	$5000 plus % savings	$0	$480	$560	Over 100%
Real- Time" Purchasing	$5000 plus % savings	$0	$120	$280	Over 100%
Demand-Side Services					
Air Quality Efficiency	$3995 plus % savings	$400 to $550	$480	$560	Over 100%
CO2	$3995 plus % savings	$400 to $550	$480	$560	Over 100%
VOC	$3995 plus % savings	$330	$480	$560	Over 100%
Sensor Pack	$3995 plus % savings	$1,260	$480	$560	Over 100%
Maintenance System	$1000/unit plus monitoring	$200	$120	$280	Over 100%
Network-Side Services					
Switch/Circuit Pack	$6995 per switch set-up	$1,500	$800	$1,600	Over 100%
Temperature Monitor	$995 per switch set-up	$200	$120	$280	Over 100%
Humidity Monitor	$995 per switch set-up	$200	$120	$280	Over 100%
Dust Monitor	$995 per switch set-up	$200	$120	$280	Over 100%
Electrostatic Monitor	$995 per switch set-up	$200	$120	$280	Over 100%
DC Battery Monitors	$2995 per battery bank	$700	$480	$560	Over 100%

THE TECHNOLOGY

GENERAL DESCRIPTION

The Omni-Link® system is an interactive information system. The system is designed to acquire data from various software communication platforms and post these data into a graphical "front-end". Once the system (and user) processes these data, the system will execute commands to optimize energy usage in the facility.

There are unique differences between the Omni-Link® interactive information system and a BAS (Building Automation System). The primary difference is that a BAS acquires information from a "closed group" of sensors located on a proprietary network in a building and executes pre-determined strategy to operate various building functions (typically HVAC or lighting equipment). The BAS "front-end" only acts as an information tool to address temperature or BAS set point discrepancies. The Omni-Link® system acquires information from BAS systems, TCP/IP (Transmition Control Protocol/Internet Protocol) connections (real-time electricity price-feeds), PLC (Programmable logic controller) devices, and OPC (OLE for Process Control) drivers through a standard non-proprietary Ethernet network. This information is posted to the "front-end" software for the system (and user) to monitor building efficiency as well as electricity supply costs and operational efficiency in order to determine and execute the next proper response. (SEE ATTACHED GRAPHICS)

In order for the Omni-Link® system to operate, four main components are utilized.

1. **"Front-End" Software** – The "front-end" software performs three functions, protocol translation, graphical representation, and CPU/System control. These functions reside at the main server (computer) and will be described in the details below. (Details Below)

2. **Central Processing Unit (CPU)** – The Central Processing Unit is the processor that stores and trends data which can execute responses from the system to the network and all the network devices. (Details Below)

3. **Network Devices** – These are the devices that reside directly on the network (TCP/IP ready) in a daisy chain fashion and are each coded with a digital address. This digital address acts as the means to locate the device and channel the data stream processed by the CPU. These devices can be PLC's, DSP's or standard digital sensors. (Details Below)

4. **Network** – There are two networks that the system may utilize as its' communication center (the customer's or an installed network). Both networks are standard CAT 5 Ethernet networks that can be accessed through standard network hubs. Typically the customer's network is utilized for communication between property locations and central data processing. In the telecommunications industry Omni-Link has the unique capability of transmitting data instantaneously via the industry standard Lucent switch packs. Local networks are installed for direct communication with network devices. (Details Below)

Detailed Explanation

The "Front-End" Software- Our front-end software has three main functions.

1. Translation Engine- The first function of our "front-end" software is translation of protocol through the translation engine. The software engine itself is written in a language called Visual Basic (Microsoft). For our telecommunication system, Omni-Link® is designed to translate three communication protocols, DDE, OPC and ASCII. Many companies in the "Building Automation System" and "ESCO" marketplace have represented the ability to communicate to any protocol from any software system. The truth is that the process control industry has been translating thousands of protocols for years, and have developed new adaptable systems that make these translations quite simple through RS232 or Ethernet device communication. All protocols are designed to extract packets of information from the software program and translate this data across a communication medium. However, all languages (C+, C++, Visual Basic, Oracle) that most building applications programs are written in have one common attribute, they use a Microsoft communication protocol called DDE (Dynamic Data Exchange). All software programs including; Johnson, Honeywell, Andover etc. need DDE communication drivers to operate. Although these companies are not required to provide customers their DDE communication driver, many software companies have reverse engineered DDE communications to these systems. For instance, Johnson Controls will sell a DDE driver for their system but Andover Controls will not. However, If you would like an Andover DDE driver you can call Streamline Software (Phoenix, Arizona) and it can be purchased for $250. The key is that Powerweb Technologies developed the engine to translate the DDE/OPC communication driver rather than re-invent the wheel and begin to write protocols for all the different software systems. DDE is limited in the fact that it is written in a 16-bit software platform. This format is adequate for building automation systems, but, cannot handle multiple protocols simultaneously. Hence, each manufacturer chooses which internal communication protocol to implement: *Modbus* (Siemens, Rockwell, Allen Bradley, Landis & Staefa), *Bacnet* (Honeywell Controls), *OPT22* (Johnson Controls), *Profibus* (International Instrument), and *LonWorks* (IBM Integrated Systems). The process control industry identified the limitations with DDE and forced Microsoft to build a new communication driver that could handle multiple levels of protocols simultaneously. This new communication platform was developed in a 32-bit platform and is called OPC (OLE {Object Link and Embedding}for Process Control). All high-end telecommunication and manufacturing equipment as well as industrial PLC's communicate through the OPC driver.

   Powerweb's unique capability to talk to most telecommunication switches manufactured by AT&T or Lucent Technologies within the "central-office" communicate via OPC is an important feature. This OPC communication driver enables our "front-end" the ability to communicate with other telecommunication equipment.

   Lastly, the "front-end" will translate the most common and widely used protocol based on ASCII standards. Most electrical metering and monitoring technologies utilize a 0-5mA signal to convert electrical information into a format that can be utilized for database functions. These calculations and informational exchanges take place within the ASCII communication protocol. The metering technology utilized in the Omni-Link system will be described in the network device section. Currently Omni-Link® converts KYZ pulses from a utility meter directly into the engine for energy database and spreadsheet

functions. In summary, our front-end software engine will translate the individual DDE, OPC or ASCII drivers in order to bring a variety of information streams through the "front-end". Once this information is placed into the "front-end" it will acquire other information from it's network devices and TCP/IP connections to allow the CPU to execute responses based on all of the acquired system information.

2. Graphical Layout-The second function of our "front-end" is presentation of building information through a graphical display. This is the key to empowering the users to make appropriate management decisions. The "front-end" allows us to import any type of TIF graphic file and actually create objects around these files to give the user a graphically pleasing machine-man interface. In addition, the front-end can operate screen changes at pre-determined set points all from the click and choose format. This graphical layout allows us to adapt and sell clients on personalized systems for each of the customer's needs, rather than a generic system for all customers. These systems can be adjusted and altered in a timely fashion without reliance on expensive programmers.

3. Controller Interface- The third function of the "front-end" is the control of the CPU. All information that passes through the "front-end" is stored and calculated at the "Central Processing Unit". In addition all information that is fed back through the "front-end" needs to be updated to make the next corrections. The "front-end" is the mechanism to adjust set points and carry out these decisions to the rest of the network devices.

Central Processor Unit (CPU)- The central processor unit is the brain that controls communication from the network to the network devices. The CPU is also responsible for data storage and communication to and from both the "front-end" via the network. Data enters the CPU through various pathways; a digital input (from a digital sensor), an analog input (from an analog sensor), TCP/IP address, and the actual "front-end". Although any CPU could be programmed to perform these functions, (we have used hybrid Andover controllers) we have been very successful with the Texas Instruments DSP/CPU line. Shipment, quality and reliability are exceptional.

Network Devices- in addition to gathering data and executing control functions through other manufacturer's field devices Powerweb has developed two groups of network devices, the digital network devices and the electricity metering network device. These are used where existing systems do not have needed inputs, or outputs.

Digital Network Devices- The ability to process information through a digital (TCP/IP) device directly on a standard Ethernet network is the key to open communication between the customers electrical supply-side, demand-side and business operations. This communication ability was developed for the process controls industry for PLC connectivity, not energy information systems. Powerweb Technologies utilizes this technology in concert with the other three components to execute efficient communication transfer. This technology was developed and patented by Dallas Semiconductor and is known in the process controls market under its' trademark license One-Wire™ technology. The One-Wire™ is a chip that has a 64 bit digital address. This address contains a 48-bit serial number, and 8-bit device type identifier and an 8-bit CRC error check byte. This chip is not a sensor that can be addressed directly on the network; it is only a chip that can be placed into a PLC device for process controls. Each chip needs to be coded to enable that chip to

"read" sensor-based information. After the chip is coded, it must be connected with a custom written DDE communication driver. This conversion function from chip to sensor would take years to reverse engineer even if the competitor knew the origin of the technologies. This enables our marketplace safety from competitors within the energy information business. Temperature, pressure, humidity, pH, conductivity, static pressure, flow, direction, weight, current, voltage and amps are just a few sensors that have been coded and operational on the network. Each sensor is manufactured in an ISO 9003 facility with failure rate below 0.01%. This ensures accuracy and reliability.

Electricity Metering- Powerweb uses off the shelf Class II revenue grade metering systems.

All of the meters utilized in the Omni-Link® system are microprocessor-based systems that measure and record the usage of electricity in non-volatile memory (CMOS RAM). They interface to the electrical load being measured with a direct voltage tap, up to 600 volts and also with current transformers if needed. The meter may vary by voltage level, line frequency and type of electrical service.

Measurements

kWh. kilowatt-hour is a measurement of active energy used over time and has a nine-digit on screen dial. Three digits are for fractional kilowatt-hours and six digits are for whole kilowatt-hours. The meter will measure and display just under one million kilowatt-hours before the dial "rolls over" to all zeros. When the meter's internal multiplier is 1, the meter can measure at full scale twenty four hours a day and not rollover for well over a year.

kW. Current demand is the average over just a few seconds at the time the meter is read. Peak demand is the highest average of any interval during a given period of time. The interval is typically programmed to 15 or 30-minute intervals and recorded in Peak kW demand along with the time and date at which it occurred.

kVARh. This is a measurement of reactive energy used over time, or Volt-Amps-Reactive (VAR's). There are actually two kinds of VAR's, capacitive and inductive. They act oppositely and cancel each other out. When the two are out of balance, the imbalance is recorded in the kVARh on screen dial. Reactive energy is present in all AC systems. This measurement is an available as expandable option.

kVAR. The two reactive components can actually produce two kVAR demands, capacitive and inductive. Although most central offices have more inductive VAR's than capacitive VAR's, the meter measures both and records the date and time that each peak occurs. This measurement is an available as expandable option.

kVAh. A kilovolt-amp hour is a measurement of apparent energy used over time. This measurement shows the capacity of the electrical system that is used by both active and reactive energy consumed by the load. The difference between kVah and kWh over a given period shows the amount of the system's capacity that is being used by reactive energy. If the difference is large, engineering can often add capacity to an existing system by correcting the power factor (balancing the two types of reactive energy so they cancel each other out) without buying larger transformers or running new feeders. This measurement

can also be used to monitor average power factor to avoid or minimize penalties charged by utility companies for low power factor. It can also be used to allocate the cost of such penalties to the loads with low power factor. This measurement is an available as expandable option.

kVA. Many electric utility companies charge for peak demand, so this measurement is often useful in cost allocation. It also provides valuable information for a facility's engineering staff. By reviewing the history of peak demands on the facility's equipment, an engineer can accurately determine if there is spare capacity or if systems need to be upgraded before loads are added. This measurement is an available as expandable option.

Time of Use Log. A log of the last 40 days of dial readings for all the measurements can be preprogrammed. The TOU Log can be read by the system to chart when and how long the "demand-shedding" should take place on each individual central-office location. This also eliminates the need to reset the demands and the need to read the meter at exactly the beginning or end of a billing period. This approach provides convenience risk stabilization for the suppliers responsible for energy procurement. The TOU Log will provide not only what the peak demand was during a billing interval, it would tell us what the peak demand was every day of the interval.

Data Log. The optional Data Log allows the system to look even closer at the "central-office" equipment as it operates daily. A Data Log stores 120 days of 15-minute demand data. All 120 days can be used for a single parameter, such as kW demands, or it can be split into 60 days each of two parameters, or, most commonly, it can be split into 40 days each of kW, kVAR and kVA demands.

Every 15 minutes a reading is taken and stored in the non-volatile memory along with a time and date stamp. The Data Log makes it possible to do coincidental and conjunctive demand billing. In a complex electrical system of a central-office, all loads do not normally reach their peak demand at the same time. This is referred to as diversity of demand. It means that, if all loads are metered, the sum of the individual peak demands will normally exceed the peak demand for the system as a whole.

Network – There are two networks that the system may utilize as its communication center, the customer's or an installed network. Both networks are standard CAT 5 Ethernet networks and can be accessed through standard network hubs. Typically the customers network is utilized to communicate between property locations for central processing and local networks are installed for device communication.

Patent and Design Protection

Powerweb Technologies has been issued the first patent in a series of patents encompassing the Omni-Link® technology. There are six other pending patents that complete the Omni-Link® product line. These remaining patents are in office-action status, which means they have been approved for the proprietary art and need clarification.

Omni-Link® has been engineered, designed and patented around a very distinct and clearly defined structured methodology. This methodology is comprised of several areas of expertise as well as functionality within each industry. Omni-Link® was developed with state

of the art software integration techniques and very sophisticated energy services techniques. This proven multi faceted methodology makes very difficult and costly for a potential competitor to attempt to reverse engineer.

In addition to investigating all user and utility software, Powerweb Technologies has performed extensive patent and professional copyright searches to determine if there all any systems that can could be possible conflicts or duplications to the Omni-Link® system. As stated by our two independent patent attorney firms, there is no competition to the Omni-Link® System.

Patent Abstract for Approved Patent

The Alternating Current Control is described as a communication device to relay energy supplied to a given facility or home. This invention measures the total line current in a location by circuit breakers, assisted by a computer storage control unit and an electromagnetic induced pickup device for each black wire to the breakers in a given control box. Each breaker has an AC power reading with current-sensing capability set to a voltage in the Control Unit for its readings given in real time response unit capability storage. The Control Unit, at given commands via a front control panel or via a modem, can display total power consumption by means of memory in the Unit and can display it, or transmit it over standard telephone lines. A central office for energy enhancements can process the data, and the Control Unit can respond with changes. The Unit can be reprogrammed at any given time for controlling the given breaker for a timed "on" or "off" response for energy savings. The Unit's ability to process the energy used in amps, kW, and energy saved can increase savings at a given location by the ability or expandability to perform smart functions such as dimming of lights or controlling air conditioning or motors. The Unit is constructed with lightweight plastic and modular plug-ins for many external control devices to work with given devices.

APPENDIX 2 KIRK HAMPTON'S TECHNICAL REVIEW

PRELIMINARY TECHNICAL REVIEW

POWERWEB TECHNOLOGIES

REVIEW PERFORMED BY: Kirk Hampton
DATE: 10-18-99

The information provided in this outline documents a preliminary technical review of Powerweb Technologies. The scope of the information provided is not intended to represent an in-dept investigation of the technologies but rather an overview for consideration of an in-dept analysis of the systems and its functions. This review was performed to determine if a due-diligence review of the technologies provided is warranted for consideration of inclusion in a business relationship involving NE/AES, Bell Atlantic and Powerweb Technologies. The business relationship may, as a result of the due-diligence process, be expanded beyond the specific relationship noted.

The specifics of the review are provided in outline form to reduce review time and expedite the decision process of performing the due-diligence review of the technologies and supporting personnel. Sufficient information is provided to illustrate the basic features and functions of the technologies. Details on any of the aspects are available upon request based on the existing nondisclosure agreement. All of the information provided in this outline is considered proprietary.

PRELIMINARY TECHNICAL REVIEW
POWERWEB TECHNOLOGIES

Taken from introductory information provided by Powerweb.

Basic Definition of System

Interactive energy information system delivering integrated solutions. The system was designed for the communications industry (Bell Atlantic) to provide operational efficiency within their existing and future facilities. The information system is called Omni-Link (Registered Trademark).

Primary Functions

Protect telecommunication-based computer switch and related equipment.

Eliminate or Reduce Environmental Hazards

Maintain Temperature/Humidity Parameters

HVAC Equipment Status/Outages

Electrical Distribution System Status/Outages/Inconsistencies /Power Loss

Monitor and Control

HVAC Systems

Interfaces with existing systems providing conditioning and FAS providing control.

Electrical Distribution Systems

Interfaces with existing systems and provides extensive manipulation of energy sources based on user decisions or calculates changes based on networked components and utility cost and demand conditions.

Energy Management Systems

Supply Side

Standby Capacity Sales through contractual agreements with agents and suppliers at the PJM grid to enable Bell Atlantic to sell virtual capacity on the open market.
Leveraged Purchasing to provide better negotiated pricing by offering a risk hedge to the supplier during peak energy cost by dropping loads.
Real Time Peak Shaving by turning on generators to reduce actual electrical cost and monitor market conditions for shedding logic decisions.
Real Time Purchasing providing the ability to reduce internal supply risk with unstable market conditions.

Energy Management Systems (Continued)

Demand Side

Note: Omni-Link is not a BAS, it is a means of identifying inefficiencies and communicates with the existing BAS in order to execute energy savings functions.

Air Quality Efficiency Control to monitor carbon dioxide, VOC and other indoor pollutants and regulates outside air intake.

Repair and Maintenance Reduction to remotely diagnose and control HVAC operations and failures, reduce failures, eliminate unnecessary service calls and implement cost savings operations.

Network Side Services

Note: Omni-Link is designed to identify and monitor the conditions of switch failure. These services will reduce the risk of switch failure and increase the network reliability.

Switch/Circuit Pack Monitors switch environmental conditions including temperature, humidity, dust, smoke and electrostatic discharge. If one of the parameters if violated the central dispatch will be notified and automatically execute a HVAC response.

DC Battery Monitors the batteries needed to operate the switch. Items monitored are charge, voltage and maintenance. If one of the parameters is violated the system will automatically notify central dispatch and execute a proper response.

Building Automation Systems

Interfaces with existing or proposed BAS for integrated control.

Communications

Internet based central interface called Omni-Link Dashboard.

Has the ability to translate software platform protocols.

The Technology

The Omni-Link System is an interactive information system designed to acquire data from various software communications platforms and post data in a graphical format-end. The user and the system process this data and execute commands to optimize the energy usage in the facility.

The difference in the Omni-Link (OL) and a BAS is that a BAS acquires and process information from a closed group of sensors located on a proprietary network in a

building and executes pre-determined or calculated responses. The OL acquires information from the BAS transmission control protocol/internet protocol connections looking at real time electrical process feeds, programmable logic controllers and process control drivers through a standard nonproprietary Ethernet network. All of the information is posted for the system and user to monitor conditions, efficiency and electrical supply cost in order to determine proper responses to the conditions from moment to moment.

Primary Components

Front End Software performs three functions, which are protocol translation, graphical representation and system control through Visual Basic. The system will translate three communication protocols, which are DDE, OPC, and ASCII through RS232 or Ethernet device communication. The languages concerned such as C+, C++, Visual Basic and Oracle have one common attribute; they use a Microsoft communication protocol called Dynamic Data Exchange (DDE). The key to Powerweb is the engine to translate communication drivers. Some of the protocols translated are Modbus, Bacnet, Profibus, Object Linked and Embedding all simultaneously.

Powerweb can talk to most telecommunications switches manufactured from AT&T and Lucent Technologies within the central office via OPC. The system will translate ASCII standards at 0-5mA. OL also converts KYZ pulses from utility meters into the energy database.

Graphical Layout of the front end enables the user to make decisions concerning facility activity. The information is provided in TIF graphic file format and creates object around them and generate screen changes based on predetermined points. Each user site may be customized without high level programmers.

Controller Interface provides the control from the CPU through which all information passes. The CPU processes all data and stores the information and feeds it back to the front end for making the next decisions. Set points may be adjusted and decisions are carried out to the rest of the network devices.

Central Processing Unit is the central control for controlling communications from the network to the network devices. It also stores data from the digital and analog sensors using a hybrid Andover controller which interfaces with Texas Instruments DSP/CPU line.
Network Devices are provided in two groups, one is the digital network devices and the electrical metering devices.

Digital network devices operate on a standard Ethernet network and provides the open communication between the supply side, demand side and business operations. Using a One-Wire Chip with 64-bit digital addressing which is placed into a PLC for processing control sensor and interfaced with a communication driver. Each of the sensors is manufactured under ISO 9003 standards.

Electrical metering uses off the shelf Class II revenue grade metering systems using the OL with microprocessor that measures and records the energy used in a non-volatile memory interfaced to electrical circuits with a direct voltage tap up to 600 volts. Measures available are kWh, kW, kVARh, kVAR, kVAH, kVA, time of use logs and may data log for 120 days and is formatted in 15-minute periods

Closing Comments

The Powerweb Technologies appears to provide a dynamic means to interface all of the various systems found within intelligent facilities with specialized or general needs related to environmental condition monitoring and control. Additional synergy is gained by the ability to monitor electrical usage for quality, quantity and real time pricing load-shifting strategies. The load shifting intelligence will allow for a fully automated means of accessing the most cost efficient source of power including site generation, utility power, battery power or a mixture of all three. Additional efficiencies may be gained by the manipulation of BAS programming based on real time pricing factors utilizing day ahead costing information. The addition ability to provide the translation of control system protocols through one point of control will provide complete systems integration throughout various markets will provide a strong market tool to secure new business beyond the specific focus for which Powerweb was devised.

It should be noted that the capabilities, which are professed by Powerweb, are taken at face value at this time, however the prospect of providing an integrated solution of this type is well worth investigating. It is my opinion that we should proceed with the due diligence process to determine if an investment in the product and the promotion of its capabilities to our clients and prospects is justified.